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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of : PATENT
Angelo T. DONFRANCESCO et al. : Appeal No.: _____
Serial No.: 09/105,150 : Group Art Unit: 2833
Filed: June 26, 1998 : Examiner: F. Figueroa
For: TERMINAL SYSTEM WITH :
DEFORMED SCREW :

SUPPLEMENTAL BRIEF ON APPEAL

FEB 22 2002

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TABLE OF CONTENTS

	<u>Page</u>
1. Real Party in Interest	1
2. Related Appeals and Interferences	2
3. Status of Claims	2
4. Status of Amendments	2
5. Summary of the Invention	2
6. Issue Presented for Review	3
7. Grouping of Claims	3
8. Argument	4
A. The Rejection	4
B. The Crowther Patent Does Not Produce the Claimed Method or Structure.....	5
C. Claims 4-10, 12-15 and 18 are Further Distinguished	10
D. Excessive Number of Actions	10
9. Conclusion	11

APPENDIX A - COPY OF CLAIMS ON APPEAL

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JW

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**APPELLANT'S SUPPLEMENTAL BRIEF
ON APPEAL UNDER 37 C.F.R. § 1.192**

Commissioner for Patents
Washington, D.C. 20231

Sir:

For the appeal to the Board of Patent Appeals and Interferences from the decision dated November 20, 2001 of the Primary Examiner finally rejecting claims 1, 4-16 and 18 in connection with the above-identified application, Applicant-Appellant submits the following supplemental brief in accordance with 37 C.F.R. §1.192.

1. Real Party in Interest

The inventors, Angelo T. DonFrancesco and Nelson Bonilla, assigned their entire right, title and interest in the patent application to Hubbell Incorporated of Orange, Connecticut.

2. Related Appeals and Interferences

There are no other related appeals or interferences known to Appellant, Appellant's legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

3. Status of Claims

Claims 1, 4-16, and 18 are pending.

In the final Office Action dated November 20, 2001, claims 1, 4-16 and 18 were finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,068,445 to Crowther. Claims 1, 4-16 and 18 are on appeal. No claim is allowed.

4. Status of Amendments

No amendment was filed subsequent to the final rejection of November 20, 2001.

5. Summary of the Invention

The present invention relates to a terminal assembly and a method of forming a terminal assembly. The terminal assembly 10 has a terminal base 12 with an internally threaded bore 38 and an externally thread screw shank 44 with opposite first and second ends. The head 46 of the screw 14 is located at the first end of the shank 44 and the second end 52 is circular and substantially planar. A deformation or stake 54 is formed in a portion of the external thread 50 of the shank 44 adjacent the second end 52 and extends along a cord of the second end offset and perpendicular to a longitudinal axis of the shank (Fig. 3 and page 7, lines 3-5). The deformation limits removal of the screw 14 from the bore 38. A portion of the external thread 50 forms a deformation 56 which has a

reduced width between adjacent crests thereof relative to other portions of the external thread (page 7, lines 5-9).

A backing plate 16 has a central aperture 66 for receiving the shank 44 and is positioned between the head 46 and the terminal base 12. Additionally, first and second depending tabs 60, 62 depend from backing plate 16 and are respectively received in first and second openings 40, 42 in terminal base 12 (page 7, lines 17-19).

By forming the terminal assembly in this manner, the deformation acts as a stop to limit the degree of removal of the screw from the bore in the terminal base. This allows the backout of the screw to be set to a predetermined dimension with a relatively high tolerance. Additionally, the screw can be backed out to its maximum extent without it becoming disengaged from the terminal base since the deformation prevents threading beyond the deformation. Forming the stake in the screw planar end facilitates its formation.

6. Issue Presented for Review

The sole issue presented for review is as follows:

Whether claims 1, 4-16 and 18 are unpatentable under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 3,068,445 to Crowther.

7. Grouping of Claims

For purposes of this appeal, all claims stand or fall separately.

8. Argument

A. The Rejection

Claims 1, 4-16 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 3,068,445 to Crowther (hereafter the Crowther patent). The Crowther patent is cited for a terminal assembly 10 comprising a terminal base 12 having a bore 18 with an internal thread, a screw 16 having a shank 24 with opposite first and second ends and with an external thread 26, and having head 22 on the first end, and a deformation 36 in a portion of the external thread adjacent the second end forming a stop to limit the removal of the screw from the bore. The Examiner concedes that the Crowther patent "does not show the deformation being a stake."

In support of the rejection, the Examiner relies on the Crowther patent disclosure in column 2, lines 25-30 to show that "the last thread at the free extremity of screw 16 can be distorted as indicated at 36 by peening or other suitable means". The Examiner cites a dictionary as defining a peen as "the end of a hammer head opposite the flat striking surface, often wedged shaped and used for chipping, indenting and metal working." The Examiner contends that it would have been "an obvious matter of design choice to deform the second end of the shank as shown in Fig. 2 (of the Crowther patent) or with a stake, since applicant has not disclosed that the use of a stake solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with a deformation shown in Fig. 2".

Additionally, the Examiner alleges that "a deformation made with a wedge-shaped peen will extend along a chord of the second end, since the purpose (discloses [sic] by Crowther) is to deform the threads, therefore reducing the width between the adjacent crests of the external threads". The Examiner further states that "any deformation at the end of the shank, as shown by Crowther, will place the deformation transverse to the longitudinal axis of the shank."

B. The Crowther Patent Does Not
Produce the Claimed Method or Structure

As seen in Fig. 2 and disclosed in col. 2 lines 27-29, the Crowther patent teaches a deformation 36 on the last thread at the free extremity of the screw 16 to prevent full withdrawal of the screw from the base 12. The Crowther patent does not disclose, teach or render obvious a stake extending in the circular and substantially planar end of a screw shank and along a chord of the second end transverse to the longitudinal axis of a screw. Thus, a prima facie case of obviousness is lacking.

As described above, the Examiner contends that it would have been obvious to modify the terminal of the Crowther patent since (1) Crowther discloses that the second end can be distorted by peening or other suitable means, (2) it would have been an obvious design choice to deform the second end of the shank with a stake, since applicants have not disclosed that the use of a stake solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the deformation as taught by Crowther, and (3) a deformation made with a wedge-shaped peen will extend along a chord of the second end, since the purpose is to deform the threads, therefore reducing the width between adjacent crests of the external threads.

Applicants submit that the Crowther patent does not disclose, teach or suggest distorting the second end of the stake as recited in the independent claims. Specifically, the Crowther patent only discloses in col. 2, lines 27-31, that the "last thread at the free extremity of screw 16 can be distorted as indicated at 36 by peening the end of the screw or by other suitable means". This portion, or any portion of the Crowther patent, fails to disclose, teach or suggest forming a stake

extending in the circular and planar end of a screw shank and along a chord of the second end transverse to the longitudinal axis of a screw. The "free extremity" of the screw can refer to the longitudinal side, and not to the planar end. In other words, the Crowther patent merely discloses distorting the threads along the longitudinal axis of the screw, or at best distorting the end thread on the side of the screw and not along the bottom of the screw transverse to the longitudinal axis of the screw.

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion or motivation to do so..." MPEP §2143.01. The Crowther patent fails to contain any motivation to modify the screw by forming a stake along a bottom of a screw that deforms threads at two circumferentially spaced locations, and prevents the screw from backing out of a hole. Specifically, the Crowther patent merely states that the end thread can be distorted so that the clamp 14 cannot be completely removed. There is no suggestion or motivation to place the deformation on any other part of the screw let alone the bottom end surface.

The Federal Circuit has held that despite the simple concept of an invention, the PTO has the burden of finding "the specific understanding or principal within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention to make the combination in the manner claimed." See *In re Werner Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q. 2d 1313, 1318 (Fed. Cir. 2000). The Examiner, in this situation, has not pointed to any specific principle or motivation in the prior art that would lead one skilled in the art to arrive at the invention as claimed. "[P]articular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed." *In re Werner Kozab*, 55 U.S.P.Q. 2d at 1371. If no particular finding can be

made as to the reason one skilled in the art would have put a stake at the end of the screw in the Crowther patent, then the Examiner cannot hold the invention obvious. Since the Crowther patent does not suggest modifying the screw as recited in the claims on appeal, the required teaching or suggestion to modify the patent is missing and the rejection cannot stand.

The Examiner is using his knowledge of the invention, in hindsight, to conclude improperly that one skilled in the art would have found it obvious to form a stake in the circular end of the screw shank in the Crowther patent. However, such "hindsight reconstruction" is impermissible in reaching a finding of obviousness. *See, e.g., W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d. 1540, 220 USPQ 303 (Fed. Cir. 1983).

Additionally, Applicants submit that forming a stake as recited in the independent claims would not have been an obvious design choice, since applicants have disclosed that the use of a stake solves a stated problem or is for a particular purpose. No evidence establishes that the invention would perform equally well with the deformation as taught by Crowther.

The Crowther deformation will likely extend farther along the axial length of the screw shank than if the end of the shank is deformed as recited in the independent claims, appears to require multiple peenings and does not obviously or necessarily provide two thread deformations in a single step. The stake as recited in the independent claims, allows the screw to be withdrawn to its maximum extent and thus maximum usage since it only deforms the end thread. Furthermore, the stake is quicker and easier to form since it extends along the substantially planar bottom surface and deforms the thread at two spaced locations with only a single stake formed in a single step. Therefore, it would not have been an obvious design choice to form the stake as recited in the independent claims, since Applicants have disclosed that the use of the stake solves stated problems, namely increasing the useful length of the screw shank and facilitating formation.

When relying on alleged general knowledge to negate patentability (i.e. an obvious design choice), that knowledge must be articulated and placed in the record. *See, In re Lee*, 61 USPQ 2d 1430 (Fed Cir. 2002). The failure to do so is not effective administrative procedure. *See id* at 1435. The Examiner must not only assure that the requisite evidence has been produced, but also must explain the reasoning by which the findings are deemed to support his conclusion. *See id* at 1434. Here the Examiner fails to provide adequate reasoning to demonstrate that the stake recited in the independent claims is obvious in view of the Crowther patent teaching of deformation by peening. The cited dictionary definition of peening does not teach that it would have been obvious to peen the bottom of the screw shank instead of the side or the last thread of the screw shank or to provide a stake along a cord of the screw bottom end. Motivation must be found in the prior art for the modification to provide a prima facie case of obviousness.

Furthermore, a deformation with a wedge shaped peen will not necessarily extend along a chord of the second end. The purpose is to deform the threads by reducing the width between adjacent crests of the external threads, as suggested by the Examiner. As noted above, the distortion in the Crowther patent is likely along the side portion of the screw shank, extending parallel to the longitudinal axis of the screw, or only at the edge of the screw bottom and not across its surface along a chord. There is no specific disclosure or teaching of the deformation extending along a chord on the bottom of the screw transverse to the longitudinal axis. The Examiner is using an improper hindsight reconstruction by suggesting that the Crowther deformation can be along the bottom of the screw shank.

The teachings of the Crowther patent do not result in a stake formed in the second end of a screw shank and extending along a chord of the second end. Rather, at best, this patent

teachings would result in a screw having a deformed thread along the exterior portion of the screw shank at the end of the screw shank.

As stated above, the Crowther patent only teaches a deformation 36 extending only along the exterior longitudinal surface of the shank 16. No teaching exists in the Crowther patent of a stake formed along a chord in an end of a shank, especially a stake formed transverse to the longitudinal axis of the screw shank. Therefore, the cited patent does not teach all the elements of the independent claims.

The Examiner states on page 4 of the November 20, 2001 Office Action that the Applicants' arguments are based on an assumption which is not correct. The Examiner further states that the Crowther patent clearly discloses that "the last thread at the free extremity of screw 16 can be distorted." Although the Crowther patent discloses a deformed thread at the extremity of screw 16, there is no disclosure or suggestion that the deformation is a stake along the substantially planar bottom of the screw shank, transverse to the longitudinal axis. The Crowther screw deformation formed "on the last thread at the free extremity" only means that the last thread of the Crowther screw is deformed, and does not mean the bottom substantially planar surface has a stake along a chord as recited in the independent claims.

Additionally, the Examiner states that Applicants' argument that the claimed stake is quicker and easier to form is not supported by the specification. Applicants submit that since the specification discloses that "a stake 54 is formed in shank end 52, extend[ing] along a chord of the circular end" (page 7, lines 3-4), it is inherent that the formation of a stake along the circular end of a screw would be easier to form than a deformation along the curved exterior of a screw. When forming a stake along the bottom, a greater surface area would be available than along the exterior side surface, where the tool for deforming the threads would need to contact the exterior

portion at a substantially perpendicular angle to properly deform the screw. Moreover, page 4, lines 3-6 and 24-26, specifically states that the terminal assembly is "easy to manufacture" and that the stake can be "easily formed". Further, all of the advantages need not be specifically disclosed in the application. In re Wright, 6 USPQ 2d 1959, 1962 (Fed.Cir. 1988).

Furthermore, the Examiner states that there is no apparent difference in procedure between the use of the method shown in Fig. 2 of Crowther and the use of the stake to deform the end of the shank, and that the definition of peen includes the use of a wedge-shaped end which will create a stake at the end of the shank. Applicant disagrees, and as stated above, notes that there is a difference between the stake used in the present invention and the deformation of the Crowther screw. Specifically, the Crowther patent does not disclose, teach or suggest forming the stake along a chord on the bottom of the screw shank, but merely at the end of the screw shank on the side through the last thread. Furthermore, as stated above, the peen is used to deform the last thread along the side and not necessarily to form a stake along a chord on the bottom as claimed.

Accordingly, claims 1, 11 and 16 are patentably distinguishable over the Crowther patent.

C. Claims 4-10, 12-15 and 18 are Further Distinguished

The dependent claims recite additional features further distinguishing the Crowther patent. Specifically, the offset and perpendicular orientation of the stake in claim 4, the reduced width in claim 5, the backing plate in claims 6-8 and 12-14, the contact in claim 9 and 15, the external thread in claim 10, and the placement of the shank in a hacking plate central aperture of claim 18 are not disclosed or rendered obvious, particularly within the overall claimed combination.

Claim 9 recites, among other things that the terminal base includes a contact 22 or 24 extending therefrom.

Regarding claims 9 and 15, the Examiner cites wire 34 as a contact extending from the terminal base. However, this wire is not a contact as claimed in the present invention. The contact of claim 9 extends from the terminal base and is not frictionally coupled thereto. As seen on page 6, lines 15-18, of this application, flanges 22 and 24 secure the terminal base to a wiring device and provide electrical connection to the internally electrically conductive portions of the wiring device. Therefore, the contacts recited in claim 9 are patentably distinct from the wire of the Crowther device.

D. Excessive Number of Actions

Applicant notes that the November 20, 2001 Office Action was at least the seventh Office Action dating back to June 4, 1999. The Actions have continually withdrawn one rejection only to supply a new rejection, including withdrawing a final rejection after an appeal brief has filed by Applicants. In view of the substantial delays and added expense, created in the examination, Applicants respectfully request a prompt judgement involving the present application.

9. Conclusion

In view of the foregoing and the Appeal Brief filed April 24, 2001, the arguments of which are herein incorporated by reference, Applicants-Appellants submit that the rejection of claims 1, 4-16 and 18 under 35 U.S.C. §103(a) as being unpatentable over the Crowther patent is untenable. Thus, Applicants-Appellants request that the rejection be reversed.

Respectfully Submitted,



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Dated: February 19, 2002

APPENDIX - COPY OF CLAIMS ON APPEAL

1. A terminal assembly, comprising:
 - a terminal base having a bore with a internal thread;
 - a screw having a shank with opposite first and second ends and with an external thread, and having a head on said first end of said shank, said second end of said shank being circular and substantially planar; and
 - a deformation in a portion of said external thread adjacent said second end of said shank, said deformation being a stake formed in said second end of said shank and extending along a chord of said second end transverse to the longitudinal axis of the shank;
 - whereby said deformation limits removal of said screw from said bore.
4. A terminal assembly according to claim 1 wherein
said stake is offset from and extends perpendicular to the longitudinal axis of said shank.
5. A terminal assembly according to claim 1 wherein
said portion of said external thread forming said deformation has a reduced width between adjacent crests thereof relative to other portions of said external thread.
6. A terminal assembly according to claim 1 wherein
a backing plate has a central aperture receiving said shank and is positioned between said head and said terminal base.

7. A terminal assembly according to claim 6 wherein
said backing plate comprises a depending tab; and
said terminal base comprises an opening slidably receiving said tab.
8. A terminal assembly according to claim 6 wherein
said backing plate comprises depending first and second tabs on opposite side
edges thereof; and
said terminal base comprises first and second openings slidably receiving said first
and second tabs, respectively.
9. A terminal assembly according to claim 1 wherein
said terminal base comprises a contact extending therefrom.
10. A terminal assembly according to claim 1 wherein
said external thread has an axial length sustaining greater than an axial length of
said internal thread.
11. A terminal assembly, comprising:
a terminal having a base plate including a bore with an internal thread of a first
axial length;
a screw having a shank with opposite first and second ends and with an external
thread of a second axial length threadedly mating with said internal thread, and having a head on

said first end of said shank, said second end of said shank being planar and circular, said second axial length being substantially greater than said first axial length; and

a stake formed in and extending along a chord of said second end transverse to the longitudinal axis of said shank, said stake creating a deformed portion of said external thread having a reduced width between adjacent crests thereof relative to other portions of said external thread, said deformed portion of said external thread forming a stop which does not threadedly mate with said internal thread.

12. A terminal assembly according to claim 11 wherein

a backing plate has a central aperture receiving said shank and is positional between said head and said terminal.

13. A terminal assembly according to claim 12 wherein

said backing plate comprises a depending tab; and

said terminal base comprises an opening slidably receiving said tab.

14. A terminal assembly according to claim 12 wherein

said backing plate comprises depending first and second tabs on opposite side edges thereof; and

said terminal base comprises first and second openings slidably receiving said first and second tabs, respectively.

15. A terminal assembly according to claim 11 wherein
said terminal comprises a contact extending from said base plate.

16. A method of forming a terminal assembly, comprising the steps of:
threading an external thread of a shank of a screw into a bore in a terminal with an internal thread, the shank having opposite first and second ends with a head at said first end; and
deforming a portion of the external thread adjacent the second end of the shank to limit the amount the screw can be backed out of the bore by staking said second end along a line extending across the second end and offset from and perpendicular to a longitudinal axis of the shank.

18. A method according to claim 16 wherein
said shank is placed within a central aperture of a backing plate before being threaded into the bore.